UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,047	01/30/2004	S. Brad Herner	SAND-01138US0	7037

22428 7590 11/01/2007

FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER	
CHEN, BRET P	
ART UNIT	**PAPER NUMBER**
1792	
MAIL DATE	**DELIVERY MODE**
11/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/769,047	HERNER ET AL.	
	Examiner	Art Unit	
	B. Chen	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/15/07*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-5,7-11,13 and 15-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-5,7-11,13 and 15-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 2-5, 7-11, 13, 15-19 are pending in this application. Amended claims 2, 9, 13, 15, 17, 19 and canceled claim 14 are noted.

The amendment dated 8/15/07 has been entered and carefully considered. The examiner appreciates the amendments to the claims. In view of the Herner Declaration dated 4/26/07, the rejection over Noda has been withdrawn.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2-5, 7-11, 13, 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al. (6,905,963) in view of

Noda discloses a semiconductor device fabricating method for forming a boron doped polysilicon film on one or more substrates in a reaction furnace of a low pressure CVD apparatus by using SiH_4 and BCl_3 as reaction gases, comprising loading one or more substrates into the reaction furnace and forming the boron doped silicon film at a temperature of about 460 to 600°C (col.2 lines 25-46). A substrate boat can be utilized to hold the substrates (col.2 lines 65-67 and Figure 1) and a purge gas of nitrogen is used (col.6 lines 1-19). The partial pressures of the precursors (example 1), and the flow rates (example 2) are varied to optimize film properties. However, the reference fails to teach the appropriate temperature range as recited in independent claim 17.

It is noted that Noda's temperature range overlaps the applicant's claimed temperature range. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Noda's temperature range that corresponds to the claimed range.

In addition, the reference remains silent on an average concentration of boron within the film. Yamazaki discloses a method of manufacturing a semiconductor device using a gettering technique by adding a metallic element having a catalytic action in crystallizing a semiconductor film (para 2). Specifically, a dopant such as phosphorous is injected into the crystalline semiconductor film by dissociating PH_3 or the like by a plasma, accelerating the ions by using an electric field, and injecting the ions into the semiconductor film to obtain better recrystallization; the ion doping method is basically a method in which separation of mass of ions is not performed). The concentration of phosphorous necessary for gettering is equal to or greater than $1x10^{20}/cm^3$ (para 9) and can be varied by changing the convenctation of the precursors (para 13, 78, 105, 115). In a specific embodiment, boron can be used as the dopant and the concentration can be $6x10^{19}$ to $6x10^{20}$ $/cm^3$ (para 123). It is well known in the art to utilize the specific boron concentration as noted above in Yamazaki. The reference also teaches the conventionality of varying the concentration by varying flow rates and temperature. It would have been obvious to utilize the boron concentration of Yamazaki in Noda's process with the expectation of obtaining better recrystallization.

The limitations of claims 2-5, 7-11, 13, 15-16, 18-19 have been addressed above.

Response to Arguments

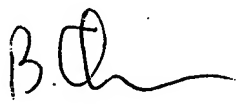
Applicant's arguments with respect to the claims above have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (571) 272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bc
10/29/07



BRET CHEN
PRIMARY EXAMINER